Correspondence

Debunking Barium Appendicitis

To THE EDITOR: The conclusions drawn by the authors of "Barium Appendicitis" in the April 1988 issue[1] require critical evaluation. They state ". . . and we advocate early appendectomy in symptomatic patients with evidence of retained barium within the appendix." Taken literally this statement may lead to unnecessary surgical procedures.

Clearly, any patient with symptoms of acute appendicitis requires an immediate operation regardless of whether the appendix retains barium. With this title, "Barium Appendicitis," however, the authors imply a cause and effect relationship of intraluminal barium with appendicitis.

The significance of prolonged retention of barium in the appendix has been debated since Bowcock's report in 1935.[2] Of his original eight patients followed for as long as two weeks, none developed appendicitis and two had normal appendectomies. Johnson found barium in the appendix for more than 72 hours in 8% of 1,106 patients.[3] Maglinte and co-workers studied 31 patients who retained barium for as long as 30 days and after a follow-up of 1 to 1½ years, none developed appendicitis. A total of 11 had subsequent films, and barium had disappeared in all.[4]

It is estimated that 3.5 million colon examinations and 6.9 million upper gastrointestinal (GI) series are done in the United States annually (industry data, oral communication). Post-examination appendiceal retention of barium is seen in 90% to 95% of patients, especially after barium enemas.[5] In the overwhelming majority of these patients, appendicitis does not develop.

Do the two case reports support the conclusion that intraappendiceal barium caused appendicitis? Case 1 revealed barium within the appendix, but no pathologic study was provided to show that it caused the appendicitis. In case 2, the right lower quadrant concretion had a lucent center and a barium rim, suggesting that the barium outlined a preexistent nonopaque fecalith as discussed by Maglinte and associates.[4]

The term "barium appendicitis" is a misnomer, suggesting as it does that barium is the cause of the inflammation. Intraluminal barium is inert and has little physiologic effect on the gastrointestinal tract.[6]

Barium retained in the appendix may have diagnostic value in two situations.[7] A preexisting fecalith may coat with barium and then have some significance as an opacified appendicolith.[5] Also, barium may outline the appendiceal lumen and thus show widening or irregularity as a manifestation of progressing appendicitis.[8]

Millions of barium-based gastrointestinal studies are done in the US each year. Similarly, appendicitis represents one of the most prevalent surgical diseases. By chance alone, appendicitis will develop in a few patients in the days or weeks following a gastrointestinal study. The paucity of reported cases (four of the authors' six references appeared before 1970) attests to the unlikelihood of a causal relationship.

In conclusion, we find no support for the concept of barium appendicitis and agree with Maglinte and colleagues that "Barium appendicitis as an entity should be disregarded and etiologic connotation between prolonged appendiceal barium retention and future acute appendicitis should be erased."[4]

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Drs Dalessandri and Palder Respond

To THE EDITOR: It is true that barium is inert and barium itself does not cause inflammation. It makes sense, however, that a barium appendicolith can cause inflammation when it causes obstruction. It is commonly accepted that an inert gallstone or kidney stone can cause inflammation when it causes obstruction.

It is also true that postexamination appendiceal retention of barium is seen in approximately 90% of patients after barium enemas. In fact, this is a sign of a normal appendix.[1,2] Most older patients, however, have spontaneous emptying of the barium-filled appendix within 72 hours.[1] Although appendicitis is the most common acute operative condition of the abdomen, it prevails primarily in the second and third decades of life. The two cases of acute appendicitis presented occurred in a 66-year-old and a 45-year-old man several months after receiving barium studies. We are, therefore, speaking of an older age group more likely to receive barium studies and less likely to have the development of acute appendicitis. Further case reports in this area will shed greater light on this subject.

We think that any patient with known prolonged retention of barium in the appendix—more than 72 hours—should be informed of that fact, just as we think any patient with asymptomatic gallstones or kidney stones should be informed. At present we advocate an operation only for those barium appendicolith patients with symptoms consistent with acute appendicitis.

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